

REMARKS/ARGUMENTS

In the Office Action, the Examiner noted that the use of trademarks in the specification should be capitalized wherever it appears and be accompanied by the generic terminology; rejected claims 1, 2, 4, 5, and 8-14 under 35 U.S.C. 102(b) as being anticipated by *Bhattacharyya et al.* (U.S. Pat. No. 5,475,565); and rejected claims 1, 2, 4, 5, 8, 13 and 14 under 35 U.S.C. 102(b) as being anticipated by *Hathaway et al.* (U.S. Pat. No. 6,225,696 B1). Applicant traverses the rejections for the reasons set forth below. Reconsideration is respectfully requested based on the remarks below.

Claim 1 has been amended to further clarify the subject matter regarded as the invention. At least some of the amendments spell out concepts that were inherent in the original claims and therefore do not narrow the claims. Claims 3, 6, 7 and 15-35 have been withdrawn from consideration. New claims 36 and 37 have been added. Accordingly, claims 1-37 are now pending in this application.

TRADEMARK INFORMALITIES IN THE SPECIFICATION

The changes suggested by the Examiner in the Office Action have been made to the specification in order to address the trademark informalities in the specification. In this regard, the Applicant believes that the amendments to the specification have addressed the Examiner's concerns.

PATENTABILITY OF CLAIMS 1, 2, 4, 5, AND 8-14

Claim 1 relates to a heat spreader that has a top surface and a bottom surface. Claim 1 requires "a bypass capacitor embedded within the heat spreader" where the bypass capacitor has "a first plate, a second plate, a dielectric between the first and second plates, a first terminal coupled to the first plate, and a second terminal coupled to the second plate". Claim 1 also requires that "the first terminal and the first plate are electrically insulated from the second terminal and the second plate". Finally, claim 1 requires that "the heat spreader is operable to transfer heat between the top and bottom surfaces of the heat spreader".

In contrast, the cited art do not teach or disclose a heat spreader as recited in claim 1. Although the Examiner cited *Bhattacharyya et al.* and *Hathaway et al.* as disclosing individually the claimed heat spreader, it is respectfully submitted that the corresponding Examiner's

citations do not teach or suggest a heat spreader as claimed. For example, in reference to *Bhattacharyya et al.*, there is no indication that element 10 as cited by the Examiner is a heat spreader. It is well known in the art that a heat spreader is operable to remove heat dissipated from a component (e.g., die) coupled to the heat spreader. For example, see column 3, lines 46-54 of *Bhattacharyya et al.* Further, it is inherent that the heat spreader is operable to transfer heat between the top and bottom surfaces of the heat spreader as required by claim 1. The only heat spreader disclosed in *Bhattacharyya et al.* is element 68, which does not include an embedded bypass capacitor as required by claim 1. In fact, *Bhattacharyya et al.* discloses a decoupling capacitor 28 outside of heat spreader 68.

Similarly, in reference to *Hathaway et al.*, there is no indication that element 20 as cited by the Examiner is a heat spreader. There is no teaching or suggestion that element 20 is operable to transfer heat between the top and bottom surfaces as required by claim 1. Instead, *Hathaway et al.* merely discloses a base 102 that acts like a heat sink. (See column 4, lines 61-65) As shown in Figure 4, base 102 does not include an embedded bypass capacitor as required by claim 1. In fact, *Hathaway et al.* discloses a capacitor 32/106 outside of base 102.

Therefore, it is respectfully submitted that neither *Bhattacharyya et al.* nor *Hathaway et al.* teaches or suggests a heat spreader as recited in claim 1. That is, claim 1 is patently distinct from the cited art.

The Examiner's rejections of the dependent claims are respectfully traversed. However, to expedite prosecution, all of these claims will not be argued separately. Claims 2, 4, 5, and 8-14 each depend either directly or indirectly from independent claim 1 and, therefore, are respectfully submitted to be patentable over cited art for at least the reasons set forth above with respect to claim 1. Further, the dependent claims require additional elements that when considered in context of the claimed inventions further patentably distinguish the invention from the cited art.

For example, claim 4 recites "wherein the bypass capacitor is embedded within the lid where the first and second plates are in a wrapped-type construction." Nowhere in the cited art is there any mention of a "wrapped-type construction". Similarly, nowhere in the cited art is there any mention of a "comb-type construction" as recited in claim 11. For another example, claim 9 requires among other things "a second bypass capacitor". The cited art fail to teach or disclose having multiple bypass capacitors embedded within the heat spreader.

NEW CLAIMS

New Claims 36 and 37 are believed to be patentable over the art of record for much the same reasons as claim 1. Claim 36 has been added to explicitly cover embodiments where "the top and bottom surfaces are completely made of metal". Support for claim 36 can be found on page 10, lines 18-19, and elsewhere in the specification. New claim 37 has been added to explicitly cover embodiments where "the bottom surface is operable to receive a corresponding surface of a die". Support for claim 37 can be found in Figs. 4A, 4B, and elsewhere in the specification.

SUMMARY

It is respectfully submitted that all pending claims are allowable and that this case is now in condition for allowance. Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned can be reached at the telephone number set out below.

If any fees are due in connection with the filing of this Amendment, the Commissioner is authorized to deduct such fees from the undersigned's Deposit Account No. 50-0388 (Order No. ALTRP107).

Respectfully submitted,
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